



CLAIMS

What is claimed is:

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- A method of printing an electronic component comprising:
 providing a surface;
 - providing a redox couple comprising an oxidizer and a reducer; solubilizing at least one of the oxidizer and reducer in a first solution; applying the first solution to the surface to create a first layer; initiating a redox reaction in the first layer; and completing the component by adding at least one additional layer.
- 2. The method of claim 1 wherein the component comprises is an active component.
- 3. The method of claim 1 wherein the component comprises an integrated component.
- 4. The method of claim 1 wherein the component comprises a power source.
- 5. The method of claim 1 wherein the component comprises a battery.
- 6. The method of claim 1 wherein at least one of the oxidizer and reducer comprises a metal containing compound, the metal selected from the list consisting of copper, iron, cobalt, tin, gold, silver, palladium, platinum, nickel, lithium, aluminum, and titanium.
- 7. The method of claim 1 wherein the oxidizer is a strong oxidizer and the reducer is a strong reducer.
- 8. The method of claim 1 wherein the redox couple includes a material selected from the list consisting of formate, nitrate, alkoxide nitrate, alkoxide perchlorate, acetate nitrate, acrylate nitrate.
- 9. The method of claim 1 wherein the step of applying comprises depositing the first solution using at least one of a stamp, a rotating plate, and a jet.
- 10. The method of claim 1 wherein at least one of the layers comprises an electrolyte.



- 11. The method of claim 1 wherein the redox reaction results in the first layer consisting essentially of a pure metal.
- 12. The method of claim 1 wherein the redox reaction results in the first layer consisting essentially of a mixed metal oxide.
- 13. The method of claim 1 wherein the step of initiating the redox reaction comprising radiating the applied solution with microwave radiation.
- 14. The method of claim 1 wherein the step of completing the component comprises:

 providing a second redox couple comprising a second oxidizer and a second reducer;

 solubilizing at least one of the second oxidizer and second reducer in a second

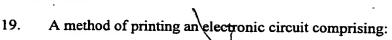
 solution;

depositing the second solution onto the first layer, and initiating a redox reaction in the second solution.

- 15. The method of claim 1 wherein the component comprises a battery, and the step of applying comprises depositing the first solution using at least one of a stamp, a rotating plate, and a jet.
- 16. The method of claim 1 further comprising:

 providing a second redox couple comprising a second oxidizer and a second reducer;

 solubilizing at least one of the second oxidizer and second reducer in a second solution;
 - depositing successive deposits of the second solution, and initiating a redox reaction in the successive deposits to produce a solid conductor that electrically couples at least two the layers of the component that are mutually non-adjacent.
- 17. The method of any of claims 1 -16 wherein the first solution applied to the surface contains no more than 5% particulates by weight.
 - The method of any of claims 1-16 wherein the first solution applied to the surface contains no more than 2% particulates by weight.



printing a plurality of components according to one of the methods of claims 1 - 16; and

applying the first solution to the surface in a pattern that connects at least two of the plurality of components, and initiating a redox reaction in the pattern to produce a conductive trace between the at least two components.

20. The method of claim 19 wherein the pattern has a lateral resolution below 10 μm.

21. The method of claim 19 wherein the circuit includes a transistor, a power source, and a capacitor.

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